

I claim:

1. A stencil to assist in application of a printable material onto a substrate comprising:

5 a pattern; and,

a coating applied to at least one surface of the pattern to retard spreading of the printable material onto the at least one surface.

10 2. The stencil of claim 1, wherein both the coating and the pattern have a surface tension, the surface tension of the coating less than the surface tension of the pattern.

3. The stencil of claim 1, wherein the coating is a polymeric material.

15 4. The stencil of claim 1, wherein the coating is applied to a bottom surface of the pattern, and the stencil further comprises a second coating applied to at least one other surface of the pattern to promote spreading of the adhesive.

5. A stencil to assist in application of a printable material onto a substrate comprising:

20 a pattern; and,

a coating applied to at least one surface of the pattern to promote spreading of the printable material.

25 6. The stencil of claim 5, wherein both the coating and the pattern have a surface tension, the surface tension of the coating greater than the surface tension of the pattern.

7. The stencil of claim 5, wherein the coating is selected from the group consisting of tungsten, tungsten carbide, tungsten nitride, nickel, and nickel alloy.

8. A semiconductor die stencil comprising:  
a pattern having a surface tension;  
a plating applied to a top surface and one or more side surfaces of the pattern  
having a surface tension greater than the surface tension of the pattern; and,  
5 a coating applied to a bottom surface of the pattern having a surface tension less  
than the surface tension of the pattern.
9. A semiconductor die stencil having a top surface, a bottom surface, and one or  
more side surfaces, the bottom surface having a surface tension less than a surface  
10 tension of the top surface and less than a surface tension of the side surfaces.
10. A semiconductor die stencil having at least a first surface and a second surface,  
the first surface having a surface tension less than a surface tension of the second  
surface to retard adhesive running from the second surface onto the first surface.  
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11. The semiconductor die stencil of claim 10, wherein the first surface is a bottom  
surface.
12. The semiconductor die stencil of claim 10, wherein the second surface is a top  
20 surface.
13. The semiconductor die stencil of claim 10, wherein the second surface is a side  
surface.
14. A semiconductor die stencil having at least a first surface and a second surface,  
the first surface having a surface tension greater than a surface tension of the second  
surface to promote adhesive running onto a semiconductor die.  
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15. A stencil to assist in application of a printable material onto a substrate

comprising:

a first patterned layer; and,

a second patterned layer corresponding to and disposed underneath the first patterned layer to retard running of the printable material onto the substrate.

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16. The stencil of claim 15, wherein both the first patterned layer and the second patterned layer have a surface tension, the surface tension of the second layer less than the surface tension of the first layer.

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17. The stencil of claim 15, further comprising a third patterned patterned layer corresponding to and disposed over the first patterned layer to promote spreading of the printable material on the substrate.

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18. The stencil of claim 17, wherein both the first patterned layer and the third patterned layer have a surface tension, the surface tension of the third layer greater than the surface tension of the first layer.

19. A stencil to assist in application of a printable material onto a substrate comprising:

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a first patterned layer; and,

a second patterned layer corresponding to and disposed over the first patterned layer to promote spreading of the printable material onto the substrate.

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20. The stencil of claim 19, wherein both the first patterned layer and the second patterned layer have a surface tension, the surface tension of the first layer less than the surface tension of the second layer.

21. A method for constructing a semiconductor die stencil comprising the steps of:  
forming a pattern of the stencil to correspond to a desired adhesive layer on a

semiconductor wafer, the pattern having a surface tension; and,

applying a first coating to a bottom surface of the pattern having a surface tension less than the surface tension of the pattern.

5           22.    The method of claim 21, further comprising the step of applying a second coating applied to at least one of a top surface and one or more side surfaces of the pattern, the second coating having a surface tension greater than the surface tension of the pattern.

10           23.    The method of claim 22, wherein the second coating is a plating.

24.    A method for constructing a stencil comprising the steps of:  
forming a pattern of the stencil to correspond to a desired printable material layer on a substrate, the pattern having a surface tension; and,

15           applying a first coating to a bottom surface of the pattern having a surface tensions less than the surface tension of the pattern.

25.    The method of claim 24, further comprising the step of applying a second coating applied to at least one of a top surface and one or more side surfaces of the pattern, the second coating having a surface tension greater than the surface tension of the pattern.

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26.    A screen to assist in application of a printable material onto a substrate comprising:

25           a pattern; and,

a coating applied to at least one surface of the pattern to retard spreading of the printable material onto the at least one surface.

27.    The screen of claim 26, wherein both the coating and the pattern have a surface

tension, the surface tension of the coating less than the surface tension of the pattern.

28. The screen of claim 26, wherein the coating is a polymeric material.

5 29. The screen of claim 26, wherein the coating is applied to a bottom surface of the pattern, and the screen further comprises a second coating applied to at least one other surface of the pattern to promote spreading of the adhesive.

10 30. A screen to assist in application of a printable material onto a substrate comprising:

a pattern; and,

a coating applied to at least one surface of the pattern to promote spreading of the printable material.

15 31. The screen of claim 30, wherein both the coating and the pattern have a surface tension, the surface tension of the coating greater than the surface tension of the pattern.

32. A screen to assist in application of a printable material onto a substrate comprising:

20 a first patterned layer; and,

a second patterned layer corresponding to and disposed underneath the first patterned layer to retard running of the printable material onto the substrate.

25 33. The screen of claim 32, wherein both the first patterned layer and the second patterned layer have a surface tension, the surface tension of the second layer less than the surface tension of the first layer.

34. The screen of claim 32, further comprising a third patterned layer corresponding to and disposed over the first patterned layer to promote spreading of the

printable material on the substrate.

35. The screen of claim 32, wherein both the first patterned layer and the third patterned layer have a surface tension, the surface tension of the third layer greater than the surface tension of the first layer.

36. A screen to assist in application of a printable material onto a substrate comprising:

a first patterned layer; and,

a second patterned layer corresponding to and disposed over the first patterned layer to promote spreading of the printable material onto the substrate.

37. The screen of claim 36, wherein both the first patterned layer and the second patterned layer have a surface tension, the surface tension of the first layer less than the surface tension of the second layer.

38. A method for constructing a screen comprising the steps of:

forming a pattern of the screen to correspond to a desired printable material layer on a substrate, the pattern having a surface tension; and,

applying a first coating to a bottom surface of the pattern having a surface tensions less than the surface tension of the pattern.

39. The method of claim 38, further comprising the step of applying a second coating applied to at least one of a top surface and one or more side surfaces of the pattern, the second coating having a surface tension greater than the surface tension of the pattern.